

Appendix A

Monitoring Information for Compliance With

Policy for the Implementation of Toxics
Standards for Inland Surface Waters,
Enclosed bays, and Estuaries of California

(Phase 1 of the Inland Surface waters Plan
and the Enclosed Bays and Estuaries Plan)

2000

REQUIREMENT FOR MONITORING OF PRIORITY POLLUTANTS REGULATED
IN THE
CALIFORNIA TOXICS RULE

In accordance with *Monitoring and Reporting Program No. R9-2002-0002*, the discharger must submit data to the San Diego Regional Water Quality Control Board to: (1) determine if water-quality based effluent limitations for priority pollutants are required; and (2) to calculate effluent limitations, if required. **The submitted data must include the following items:**

- the concentration of each priority pollutant (Table 1. 40 CFR 131.38 Priority Pollutants) in the effluent at the point of discharge;
- the concentration of each priority pollutant (Table 1. 40 CFR 131.38 Priority Pollutants) in the receiving water upstream of the point of discharge;
- the flow rate of the receiving water at the time of sampling (if discharge is to a river or creek);
- the pH of the effluent;
- the pH of the receiving water;
- the hardness of the effluent (fresh waters);
- the salinity of the receiving water (marine waters); and
- 2,3,7,8-TCDD and congeners (Table 3) must be analyzed and submitted according to the Implementation Policy.

Upon the Regional Board's evaluation of the submitted data, further monitoring of any or all of the priority pollutants may be required.

SWRCB-approved laboratory methods and the corresponding minimum levels (MLs) for the examination of each priority pollutant are listed in Tables 2a, 2b, 2c, and 2d of this Appendix. Reporting requirements for the data to be submitted are listed in this Appendix.

Table 1. 40 CFR 131.38 – Priority Pollutants

Compound	Concentration ($\mu\text{g/L}$)
Antimony	
Arsenic	
Beryllium	
Cadmium	
Chromium (III)	
Chromium (VI)	
Copper	
Lead	

Compound	Concentration ($\mu\text{g/L}$)
Mercury	
Nickel	
Selenium	
Silver	
Thallium	
Zinc	
Cyanide	
Asbestos	
2,3,7,8-TCDD (Dioxin)	
Acrolein	

Compound	Concentration ($\mu\text{g/L}$)	Compound	Concentration ($\mu\text{g/L}$)
Acrylonitrile		Benzo(a)Anthracene	
Benzene		Benzo(a)Pyrene	
Bromoform		Benzo(b)Fluoranthene	
Carbon Tetrachloride		Benzo(ghi)Perylene	
Chlorobenzene		Benzo(k)luoranthene	
Chlorodibromomethane		Bis(2-Chloroethoxy)Methane	
Chloroethane		Bis(2-Chloroethyl)Ether	
2-Chloroethylvinyl Ether		Bis(2-Chloroisopropyl)Ether	
Chloroform		Bis(2-Ethylhexyl)Phthalate	
Dichlorobromomethane		4-Bromophenyl Phenyl Ether	
1,1-Dichloroethane		Butylbenzyl Phthalate	
1,2-Dichloroethane		2-Chloronaphthalene	
1,1-Dichloroethylene		4-Chlorophenyl Phenyl Ether	
1,2-Dichloropropane		Chrysene	
1,3-Dichloropropylene		Dibenzo(a,h)Anthracene	
Ethylbenzene		1,2-Dichlorobenzene	
Methyl Bromide		1,3-Dichlorobenzene	
Methyl Chloride		1,4-Dichlorobenzene	
Methylene Chloride		3,3'-Dichlorobenzidine	
1,1,2,2-Tetrachloroethane		Diethyl Phthalate	
Tetrachloroethylene		Dimethyl Phthalate	
Toluene		Di-n-Butyl Phthalate	
1,2-t-Dichloroethylene		2,4-Dinitrotoluene	
1,1,1-Trichloroethane		Di-n-Octyl Phthalate	
1,1,2-Trichloroethane		1,2-Diphenylhydrazine	
Trichloroethylene		Fluoranthene	
Vinyl Chloride		Fluorene	
2-Chlorophenol		Hexachlorobenzene	
2,4-Dichlorophenol		Hexachlorobutadiene	
2,4-Dimethylphenol		Hexachlorocyclopentadiene	
2-Methyl-4,6-Dinitrophenol		Hexachloroethane	
2,4-Dinitrophenol		Indeno(1,2,3-cd) Pyrene	
2-Nitrophenol		Isophorone	
4-Nitrophenol		Naphthalene	
3-Methyl-4-Chlorophenol		Nitrobenzene	
Pentachlorophenol		N-Nitrosodimethylamine	
Phenol		N-Nitrosodi-n-Propylamine	
2,4,6-Trichlorophenol		N-Nitrosodiphenylamine	
Acenaphthene		Chlordane	
Acenaphthylene		Phenanthrene	
Anthracene		Pyrene	
Benzidine		1,2,4-Trichlorobenzene	

Compound	Concentration ($\mu\text{g/L}$)
Aldrin	
Alpha-BHC	
beta-BHC	
gamma-BHC	
delta-BHC	
4,4'-DDT	
4,4'-DDE	
4,4'-DDD	
Dieldrin	
alpha-Endosulfan	
beta-Endosulfan	
Endosulfan Sulfate	
Endrin	
Endrin Aldehyde	
Heptachlor	
Heptachlor Epoxide	
PCBs	
Toxaphene	

SWRCB Minimum Levels in ppb ($\mu\text{g/L}$)

The Minimum Levels (MLs) in this appendix are for use in reporting and compliance determination purposes in accordance with section 2.4 of the State Implementation Policy. These MLs were derived from data for priority pollutants provided by State certified analytical laboratories in 1997 and 1998. These MLs shall be used until new values are adopted by the SWRCB and become effective. The following tables (Tables 2a - 2d) present MLs for four major chemical groupings: volatile substances, semi-volatile substances, inorganics, and pesticides and PCBs.

Table 2a - VOLATILE SUBSTANCES*	GC	GCMS
1,1 Dichloroethane	0.5	1
1,1 Dichloroethene	0.5	2
1,1,1 Trichloroethane	0.5	2
1,1,2 Trichloroethane	0.5	2
1,1,2,2 Tetrachloroethane	0.5	1
1,2 Dichlorobenzene (volatile)	0.5	2
1,2 Dichloroethane	0.5	2
1,2 Dichloropropane	0.5	1
1,3 Dichlorobenzene (volatile)	0.5	2
1,3 Dichloropropene (volatile)	0.5	2
1,4 Dichlorobenzene (volatile)	0.5	2
Acrolein	2.0	5
Acrylonitrile	2.0	2
Benzene	0.5	2
Bromoform	0.5	2
Bromomethane	1.0	2
Carbon Tetrachloride	0.5	2
Chlorobenzene	0.5	2
Chlorodibromo-methane	0.5	2
Chloroethane	0.5	2
Chloroform	0.5	2
Chloromethane	0.5	2
Dichlorobromo-methane	0.5	2
Dichloromethane	0.5	2
Ethylbenzene	0.5	2
Tetrachloroethene	0.5	2
Toluene	0.5	2
Trans-1,2 Dichloroethylene	0.5	1
Trichloroethene	0.5	2
Vinyl Chloride	0.5	2

*The normal method-specific factor for these substances is 1; therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance.

Table 2b - SEMI-VOLATILE SUBSTANCES*	GC	GCMS	LC	COLOR
1,2 Benzanthracene	10	5		
1,2 Dichlorobenzene (semivolatile)	2	2		
1,2 Diphenylhydrazine		1		
1,2,4 Trichlorobenzene	1	5		
1,3 Dichlorobenzene (semivolatile)	2	1		
1,4 Dichlorobenzene (semivolatile)	2	1		
2 Chlorophenol	2	5		
2,4 Dichlorophenol	1	5		
2,4 Dimethylphenol	1	2		
2,4 Dinitrophenol	5	5		
2,4 Dinitrotoluene	10	5		
2,4,6 Trichlorophenol	10	10		
2,6 Dinitrotoluene		5		
2- Nitrophenol		10		
2-Chloroethyl vinyl ether	1	1		
2-Chloronaphthalene		10		
3,3' Dichlorobenzidine		5		
3,4 Benzofluoranthene		10	10	
4 Chloro-3-methylphenol	5	1		
4,6 Dinitro-2-methylphenol	10	5		
4- Nitrophenol	5	10		
4-Bromophenyl phenyl ether	10	5		
4-Chlorophenyl phenyl ether		5		
Acenaphthene	1	1	0.5	
Acenaphthylene		10	0.2	
Anthracene		10	2	
Benzidine		5		
Benzo(a) pyrene(3,4 Benzopyrene)		10	2	
Benzo(g,h,i)perylene		5	0.1	
Benzo(k)fluoranthene		10	2	
bis 2-(1-Chloroethoxy) methane		5		
bis(2-chloroethyl) ether	10	1		
bis(2-Chloroisopropyl) ether	10	2		
bis(2-Ethylhexyl) phthalate	10	5		
Butyl benzyl phthalate	10	10		
Chrysene		10	5	
di-n-Butyl phthalate		10		
di-n-Octyl phthalate		10		
Dibenzo(a,h)-anthracene		10	0.1	
Diethyl phthalate	10	2		
Dimethyl phthalate	10	2		
Fluoranthene	10	1	0.05	

Table 2b - SEMI-VOLATILE SUBSTANCES*	GC	GCMS	LC	COLOR
Fluorene		10	0.1	
Hexachloro-cyclopentadiene	5	5		
Hexachlorobenzene	5	1		
Hexachlorobutadiene	5	1		
Hexachloroethane	5	1		
Indeno(1,2,3,cd)-pyrene		10	0.05	
Isophorone	10	1		
N-Nitroso diphenyl amine	10	1		
N-Nitroso-dimethyl amine	10	5		
N-Nitroso -di n-propyl amine	10	5		
Naphthalene	10	1	0.2	
Nitrobenzene	10	1		
Pentachlorophenol	1	5		
Phenanthrene		5	0.05	
Phenol **	1	1		50
Pyrene		10	0.05	

* With the exception of phenol by colorimetric technique, the normal method-specific factor for these substances is 1,000; therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance multiplied by 1,000.

** Phenol by colorimetric technique has a factor of 1.

Table 2c – INORGANICS*	FAA	GFAA	ICP	ICPMS	SPGFAA	HYDRIDE	CVAA	COLOR	DCP
Antimony	10	5	50	0.5	5	0.5			1,000
Arsenic		2	10	2	2	1		20	1,000
Beryllium	20	0.5	2	0.5	1				1,000
Cadmium	10	0.5	10	0.25	0.5				1,000
Chromium (total)	50	2	10	0.5	1				1,000
Chromium VI	5							10	
Copper	25	5	10	0.5	2				1,000
Cyanide								5	
Lead	20	5	5	0.5	2				10,000
Mercury				0.5			0.2		
Nickel	50	5	20	1	5				1,000
Selenium		5	10	2	5	1			1,000
Silver	10	1	10	0.25	2				1,000
Thallium	10	2	10	1	5				1,000
Zinc	20		20	1	10				1,000

- * The normal method-specific factor for these substances is 1; therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance.

Table 2d – PESTICIDES – PCBs*	GC
4,4'-DDD	0.05
4,4'-DDE	0.05
4,4'-DDT	0.01
a-Endosulfan	0.02
a-Hexachloro-cyclohexane	0.01
Aldrin	0.005
b-Endosulfan	0.01
b-Hexachloro-cyclohexane	0.005
Chlordane	0.1
d-Hexachloro-cyclohexane	0.005
Dieldrin	0.01
Endosulfan Sulfate	0.05
Endrin	0.01
Endrin Aldehyde	0.01
Heptachlor	0.01
Heptachlor Epoxide	0.01
Lindane(g-Hexachloro-cyclohexane)	0.02
PCB 1016	0.5
PCB 1221	0.5
PCB 1232	0.5
PCB 1242	0.5
PCB 1248	0.5
PCB 1254	0.5
PCB 1260	0.5
Toxaphene	0.5

- * The normal method-specific factor for these substances is 100; therefore, the lowest standard concentration in the calibration curve is equal to the above ML value for each substance multiplied by 100.

Techniques:

GC - Gas Chromatography

GCMS - Gas Chromatography/Mass Spectrometry

HRGCMS - High Resolution Gas Chromatography/Mass Spectrometry (i.e., EPA 1613, 1624, or 1625)

LC - High Pressure Liquid Chromatography

FAA - Flame Atomic Absorption

GFAA - Graphite Furnace Atomic Absorption

HYDRIDE - Gaseous Hydride Atomic Absorption

CVAA - Cold Vapor Atomic Absorption

ICP - Inductively Coupled Plasma

ICPMS - Inductively Coupled Plasma/Mass Spectrometry

SPGFAA - Stabilized Platform Graphite Furnace Atomic Absorption (i.e., EPA 200.9)

DCP - Direct Current Plasma

COLOR - Colorimetric

MONITORING AND REPORTING REQUIREMENTS FOR THE POLICY

The following information must be included in the monitoring reports.

1. **Laboratory Requirements**. The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code Section 13176 and **must include** quality assurance/quality control data with their reports.
2. **Minimum Levels (ML)**. The minimum levels are in accordance with the values listed in Tables 2a through 2d.
3. **Method Detection Limit (MDL)**. The method detection limit for the laboratory shall be determined by the procedure found in 40 Code of Federal Regulations (CFR) Part 136 (revised as of May 14, 1999).
4. **Reporting Protocols**. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols (Policy §2.4.4):
 - a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
 - b. Sample results less than the reported ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
 - c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quantity may be percent accuracy (\pm a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
 - d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.
5. **Data Format**. The monitoring report shall contain the following information for each pollutant:
 - a. The name of the pollutant.
 - b. The analytical results of the effluent monitoring.

- c. The applicable Minimum Level (ML) as specified in Tables 2a through 2d.
- d. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136 (revised as of May 14, 1999).
- e. The measured or estimated concentration.
- f. The analytical results for the 2,3,7,8-TCDD congeners shall include the quantifiable limit (Implementation Policy, p. 28), and the MDL, and the measured or estimated concentration. Additionally, each measured or estimated congener concentration shall be multiplied by its respective TEF value and the sum of these values reported. Each individual value shall also be reported.

Example of Data Format.

Discharger: _____

Name of Laboratory: _____

Contact Name: _____

Laboratory Contact: _____

Phone Number: _____

Phone Number: _____

Sample ID _____

Sample location _____

Name of Constituent	Date Sample Collected	Date Sample Analyzed	USEPA Method Used	Analytical Results (ug/L)	ML (ug/L)	MDL (ug/L)	RDL (ug/L)	Comments
1,1 Dichloroethane								
1,1 Dichloroethene								
1,1,1 Trichloroethane								
1,1,2 Trichloroethane								
1,1,2,2 Tetrachloroethane								
1,2 Dichlorobenzene (volatile)								
1,2 Dichloroethane								
1,2 Dichloropropane								
1,3 Dichlorobenzene (volatile)								
1,3 Dichloropropene (volatile)								
1,4 Dichlorobenzene (volatile)								
Acrolein								
Acrylonitrile								
Benzene								
Bromoform								
Bromomethane								
Carbon Tetrachloride								

Name of Constituent	Date Sample Collected	Date Sample Analyzed	USEPA Method Used	Analytical Results (ug/L)	ML (ug/L)	MDL (ug/L)	RDL (ug/L)	Comments
VOLATILE POLLUTANTS								
Chlorobenzene								
Chlorodibromo-methane								
Chloroethane								
Chloroform								
Chloromethane								
Dichlorobromo-methane								
Dichloromethane								
Ethylbenzene								
Tetrachloroethene								
Toluene								
Trans-1,2 Dichloroethylene								
Trichloroethene								
Vinyl Chloride								
SEMI – VOLATILE POLLUTANTS								
1,2 Benzanthracene								
1,2 Dichlorobenzene (Semivolatile)								
1,2 Diphenylhydrazine								
1,2,4 Trichlorobenzene								
1,3 Dichlorobenzene (Semivolatile)								
1,4 Dichlorobenzene (Semivolatile)								
2 Chlorophenol								
2,4 Dichlorophenol								
2,4 Dimethylphenol								
2,4 Dinitrophenol								

Name of Constituent	Date Sample Collected	Date Sample Analyzed	USEPA Method Used	Analytical Results (ug/L)	ML (ug/L)	MDL (ug/L)	RDL (ug/L)	Comments
2,4 Dinitrotoluene								
2,4,6 Trichlorophenol								
2,6 Dinitrotoluene								
2-Nitrophenol								
2-Chloroethyl vinyl ether								
2-Chloronaphthalene								
3,3' Dichlorobenzidine								
3,4 Benzofluoranthene								
4 Chloro-3-methylphenol								
4,6 Dinitro-2-methylphenol								
4-Nitrophenol								
4-Bromophenyl phenyl ether								
4-Chlorophenyl phenyl ether								
Acenaphthene								
Acenaphthylene								
Anthracene								
Benzidine								
Benzo (a) pyrene(3,4 Benzopyrene)								
Benzo (g,h,i) perylene								
Benzo (k) fluoranthene								
bis 2-(1-Chloroethoxy) methane								
bis(2-Chloroethyl) ether								
Bis(2-Chloroisopropyl) ether								
Bis(2-Ethylhexyl)								

Name of Constituent	Date Sample Collected	Date Sample Analyzed	USEPA Method Used	Analytical Results (ug/L)	ML (ug/L)	MDL (ug/L)	RDL (ug/L)	Comments
phthalate								
Butyl benzyl phthalate								
Chrysene								
di-n-Butyl phthalate								
di-n-Octyl phthalate								
Dibenzo(a,h)-anthracene								
Diethyl phthalate								
Dimethyl phthalate								
Fluoranthene								
Fluorene								
Hexachloro-cyclopentadiene								
Hexachlorobenzene								
Hexachlorobutadiene								
Hexachloroethane								
Indeno(1,2,3,cd)-pyrene								
Isophorone								
N-Nitroso diphenyl amine								
N-Nitroso-dimethyl amine								
N-Nitroso-di n-propyl amine								
Naphthalene								
Nitrobenzene								
Pentachlorophenol								
Phenanthrene								
Phenol								
Pyrene								

INORGANICS

Name of Constituent	Date Sample Collected	Date Sample Analyzed	USEPA Method Used	Analytical Results (ug/L)	ML (ug/L)	MDL (ug/L)	RDL (ug/L)	Comments
Antimony								
Arsenic								
Beryllium								
Cadmium								
Chromium (total)								
Chromium VI								
Copper								
Cyanide								
Lead								
Mercury								
Nickel								
Selenium								
Silver								
Thallium								
Zinc								
PESTICIDES								
4,4'-DDD								
4,4'-DDE								
4,4'-DDT								
a-Endosulfan								
a-Hexachloro-cyclohexane								
Aldrin								
b-Endosulfan								
b-Hexachloro-cyclohexane								
Chlordane								
d-Hexachloro-cyclohexane								

Name of Constituent	Date Sample Collected	Date Sample Analyzed	USEPA Method Used	Analytical Results (ug/L)	ML (ug/L)	MDL (ug/L)	RDL (ug/L)	Comments
Dieldrin								
Endosulfan Sulfate								
Endrin								
Endrin Aldehyde								
Heptachlor								
Heptachlor Epoxide								
Lindane (<i>g</i> -Hexachloro-cyclohexane)								
PCB 1016								
PCB 1221								
PCB 1232								
PCB 1242								
PCB 1248								
PCB 1254								
PCB 1260								
Toxaphene								

Marine Water

Salinity (ppt) _____

pH (units) _____

Fresh Waterhardness (CaCO₃, mg/L) _____

pH (units) _____

Table 3. Toxic Equivalency Factors (TEFs) for 2,3,7,8-TCDD Equivalents

Congener	TEF
2,3,7,8-TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001